Appendix A: Troubleshooting

Diagnosing Hub Indicators

This Fast Ethernet hub can be easily monitored through its comprehensive panel indicators. These indicators assist the network manager in identifying problems the hub may encounter. This section describes common problems you may encounter and possible solutions.

Symptom: Power indicator does not light up.
Cause: Defective power outlet, power cord, or internal power supply.
Solution: Have your unit's power supply or Power LED replaced. Ask for dealer assistance.

Symptom: Partition indicator lights up.
Cause: Hub has partitioned a port.
Solution: If port partitioning has occurred, the hub will automatically enable the port when the faulty condition disappears.

Symptom: Link/Traffic indicator remains unlit after making a connection.
Cause: Workstation's network adapter, the cable, or the hub port is defective.
Solution: Verify that the hub and attached device are powered on. Be sure the cable is plugged into both the hub and corresponding device. Verify that the proper cable type is used (Chapter 2), and that its length does not exceed 100 meters (328 feet). Check the adapter on the attached device and cable connections for possible defects. Replace the defective adapter or cable if necessary

Use the diagnostic procedures described in the following section to verify that all other system components are functioning properly. If you still cannot resolve the problem, contact your Accton distributor for assistance.

System Diagnostics

Power and Cooling Problems

If the Power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or internal power supply as explained in the previous section. However, if the unit powers off after running for a while, check for loose power connections, power losses or surges at the power outlet, and verify that the fan on back of the unit is unobstructed and running prior to shutdown. If you still cannot isolate the problem, then the internal power supply may be defective. In this case, contact your Accton distributor for assistance.

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g., the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

Cabling

1. Verify that the cabling type is correct. Be sure all cable connectors are securely seated in the required ports. Use 100Ω Category 5 straight-through cable for all standard twisted-pair connections.
2. Make sure all devices are connected to the network. Equipment may have been unintentionally disconnected from the network.
3. This is a Class I hub and cannot be connected to another hub via any of the RJ-45 ports on the front panel. If you must connect to another hub, you can use one of the optional switch modules.
4. If you want to connect to a switch, use an RJ-45 MDI to MDI-X connection. If you must cascade to a switch using MDI-X ports at both ends of the cable

(i.e., not the MDI port), make sure a crossover cable is used. Crossover cable should only be used if an MDI daisy-chain port is not available. Also note that the maximum cable length for a fiber optic connection is 2 kilometers (1.24 miles) for full duplex and 412 meters (0.25 miles) for half duplex.

Transmission Mode

When you use an optional switch module, verify that the attached device supports auto-negotiation if it must operate at full duplex.

External Adapters

Make sure the network interface hardware and software drivers for the attached devices are function properly. Check the adapter cards and associated drivers used in any attached workstation or server.

Physical Configuration

If problems occur after altering the network configuration, restore the original connections, then try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances and other physical aspects of the installation do not exceed recommendations.

System Integrity

As a last resort verify the hub's integrity with a power-on reset. Turn the power to the hub off and then on a few times. If the problem still persists and you have completed all the preceding diagnoses, contact your Accton distributor for further assistance. (Refer to Appendix E.)

Appendix B:
Port and Cable Assignments

RJ-45 Port

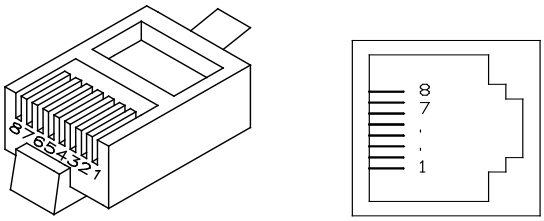


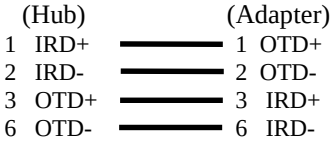
Figure B-1 RJ-45 Connector (on the Hub Side)

Pin	MDI-X Assignment (Station Port 1 ~ 12)	MDI Assignment (Cascade Port 12)
1	Input Receive Data +	Output Transmit Data +
2	Input Receive Data -	Output Transmit Data -
3	Output Transmit Data +	Input Receive Data +
6	Output Transmit Data -	Input Receive Data -
4,5,7,8	Not Used	Not Used

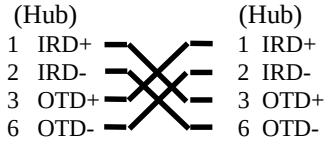
Table B-1 RJ-45 Pin Assignments

Schematics for both straight and crossover twisted-pair cable are shown below.

Straight-Through



Crossover



Appendix C: Product Specifications

Transmission Technique	Baseband
Topology	Star or Tree
Access Method	CSMA/CD, 100Mbps
Standards Conformance	IEEE 802.3u 100BASE-TX Class I Repeater
Media Supported	Unshielded or shielded twisted-pair cable (100Ω Category 5 STP/UTP)
Interfaces	12 RJ-45 MDI-X station ports, (Port 12 can be switched to function as an MDI-X station port or MDI daisy-chain port); 2 backplane ports for stack interconnection; and 1 slot for an optional 100BASE-TX or 100BASE-FX switch module
Hub-to-Workstation Distance	100 meters maximum using category 5 STP or UTP cable
Maximum Stack Size	5 hubs
Dimensions	440 x 240 x 43 mm (17.32 x 9.44 x 1.69 in)
Power Input	100 to 240 VAC (±10%), 50 to 60 Hz (± 3%)
Power Consumption	2 Amp max. @ 100 VAC, 1 Amp @ 240 VAC
Temperature	0°C to 40°C (Standard Operating)
Humidity	5% to 95% (Noncondensing)
Certification	CE Mark
Emissions	FCC Class B, VCCI Class B, CISPR 22 Class B
Immunity	IEC 1000-4-2,3,4,6
Safety	UL, CSA, TÜV/GS

Appendix D:
Regulatory Standards Compliance

EMI Certification

FCC Class B Certification

Accton Technology Corporation
Model Numbers: *EH3012A*
FCC ID: HED 3012AEH-TX

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Warning! This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to
- Consult the dealer or an experienced radio/TV technician for help

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Warnings 1. Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge whenever handling this equipment.
2. When connecting this device to a power outlet, connect the field ground lead on the tri-pole power plug to a valid earth ground line to prevent electrical hazards.

You may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office. Washington, D.C. 20402. Stock No. 004-000-00345-4.

Note: In order to maintain compliance with the limits of a Class B digital device, Accton requires that you use a quality interface cable when connecting to this device. Changes or modifications not expressly approved by Accton could void the user's authority to operate this equipment. Suggested cable type is:

- Twisted-pair for RJ-45 connections: 100Ω Category 5 STP or UTP

Voluntary Control Council for Interference (VCCI-B)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

European Community Immunity Requirements

This unit was tested and found to comply with the Class B limits of EN55022 (CISPR 22) and the immunity requirements of EN50082-1.

CE Mark Declaration of Conformance (for EMI and Safety)

This is to certify that this product complies with ISO/IEC Guide 22 and EN45014. It conforms to the following specifications:

EMC:	EN55022(1988)/CISPR-22(1985)	class B
	EN60555-2(1987)	class B
	EN60555-3	
	IEC1000-4-2(1995)	CD 4kV, AD 8kV
	IEC1000-4-3(1995)	3V/m
	IEC1000-4-4(1995)	1kV - (power line), 0.5kV - (signal line)
	IEC1000-4-6	3Vrms

This product complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC.

Warning!

Do not plug a phone jack connector in the RJ-45 port. This may damage the hub.

Les raccordeurs ne sont pas utilisé pour le système téléphonique!

Safety Compliance

Underwriters Laboratories Inc.

Important! Before making connections, make sure you have the correct Cord Set. Check it (read the label on the cable) against the following specification list.

Operating Voltage	Cord Set Specifications
120 Volts	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Parallel blade, grounding type attachment plug rated 15A, 125V
240 Volts (For North America)	UL Listed/CSA Certified Cord Set
	Minimum 18 AWG
	Type SVT or SJT three conductor cord
	Maximum length of 15 feet
	Tandem blade, grounding type attachment plug rated 15A, 125V
240 Volts (For Europe only)	Cord Set with H05VV-F cord having three conductors with minimum diameter of 0.75 mm^2
	IEC-320 receptacle
	Male plug rated 6A, 250V

The unit will automatically select the setting that matches the input voltage connected. Therefore, no additional adjustments are necessary when connecting it to any input voltage within the range marked on the rear panel.

Wichtige Sicherheitshinweise

1. Bitte lesen Sie diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie keine Flüssig- oder Aerosolreiniger. Am besten eignet sich ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlu ßsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Beschädigungen hervorrufen.
7. Die Belüftungsöffnungen dienen der Luftzirkulation, die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen, die sich am Gerät befinden, sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
    a. Netzkabel oder Netzstecker sind beschädigt.
    b. Flüssigkeit ist in das Gerät eingedrungen.
    c. Das Gerät war Feuchtigkeit ausgesetzt.
    d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
    e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
    f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weniger.

Appendix E:
Product Support Services

Product Registration

Fill in the Owner Registration Card and mail it to Accton Technology Corporation. Accton will keep your record and inform you of any new Accton unit developments.

Problem Report

If problems occur during unit operation, please check the adapter configuration settings, cables, connectors, network terminators, hardware compatibility and other network components.

Write a description of the problem, including what problems occurred, when they occurred, duration of the problems, the unit number, serial number, hardware, software and the DOS version that you are using. Then contact your dealer or Accton Technology Corporation for assistance.

Hardware Repair Service

You must get an RMA (Return Materials Authorization) number before returning any hardware for repair. To obtain this number please inform Accton of your company name, address, unit name and model number, contact person, telephone number, and a problem description list. If your unit is under repair warranty you must also give your purchase date. Carefully pack your hardware. If possible, use the original carton. Mark the RMA number on the carton and send it to your dealer.

After repair, Accton will inform you of the date of delivery and the exact amount due. Please send the payment by T/T (Telegram Transfer), and Accton will send you the fixed component after receiving payment. With or without warranty, if the hardware is found to be free of defects, you will only be charged for testing and handling.

Bulletin Board Service (BBS)

- In countries other than the U.S., call 886-3-5770-654 to reach Accton Taiwan's modem line. Modems with 14400 through 2400 baud are supported. Choose 8 data bits, 1 stop bit and no parity. Standard VT100 terminal emulation is supported
- In the United States, call 408-452-8828 to reach the Accton USA's BBS line. Modems with 14400 through 2400 baud are supported. Choose 8 data bits, 1 stop bit and none parity. Standard VT100 terminal emulation is supported.

Interactive Fast Fax (U.S.A. office)

Printed technical documentation can be faxed to your FAX machine, 24-hours a day.

- Call 408-452-8811 to reach Accton's interactive Fast FAX service. You will need a Touch-Tone phone and a FAX machine (or equivalent). Choose document 911 for a listing of technical bulletins.

Technical Support

Your dealer or installer is the person who understands your network and Accton units. If neither is available to help you, Accton technical support engineers are available by FAX, mail or phone.

- Send your technical questions by FAX to:

  International Headquarters: 886-3-5770-267
  USA Headquarters: 408-452-8988

- To obtain software upgrades connect via ftp to ftp.accton.com.tw
- Send your technical questions by email to support@accton.com.tw
- Mail your technical questions to:

International Headquarters	**USA Headquarters**
Accton Technology Corporation Attn: Technical Support No. 1 Creation Road III Science-based Industrial Park Hsinchu 300, Taiwan, R.O.C.	Accton Technology Corporation Attn: Technical Support 1962 Zanker Road, San Jose, CA 95112, U.S.A.

During local business hours, call:

International Headquarters	**USA Headquarters**
(Monday through Friday, 8 am to 6 p.m.): 886-3-5770-270	(Monday through Friday, 7 am to 5 p.m. Pacific Time): 408-452-8900 or 800-926-9288

Limited Warranty

Accton warrants to the original owner that the product delivered in this package will be free from defects in material and workmanship for the lifetime of the product. For the warranty to apply, you must register your purchase by returning the registration card indicating the date of purchase and including proof of purchase. There will be a minimal charge to replace consumable components, such as fuses, power transformers, and mechanical cooling devices. The warranty does not cover the product if it is damaged in the process of being installed. Accton recommends that you have the company from whom you purchased this product install it.

THE ABOVE WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE. ACCTON SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. ACCTON NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY OTHER LIABILITY.

Customer Remedies

If the product is found to be defective within the first two years from the later of date of purchase or date of manufacture, Accton's entire liability and your exclusive remedy for any breach of warranty, shall be, at its option, to repair or replace the product at no charge except as set forth below. If the product is found to be defective after two years from the later of date of purchase or date of manufacture, Accton will charge a process and handling fee, provided that you deliver the product along with a return material authorization (RMA) number either to the company from whom you purchased it or to Accton. Accton warrants the repaired or replaced product to be free from defects in material and workmanship for the remainder of the original product's warranty period. Consumable components are warranted only for two years.

Return Process

Before you may return any Accton product to Accton, you must request an RMA number by calling, FAXing or writing Accton's Service Department at the address listed below. If you ship the product, you must assume the risk of damage or loss in transit. You must use the original container (or the equivalent) and pay the shipping charge. Accton may replace or repair the product with either a new or reconditioned product, and the returned product becomes Accton's property. At Accton's sole discretion, Accton will issue a credit for either a comparable replacement Accton product or credit the original purchase price towards the purchase of any Accton product for any unrepairable, defective product.

This warranty does not cover replacement of products damaged by abuse, accident, misuse, neglect, alteration, repair, disaster, improper installation or improper testing.

ACCTON SHALL NOT BE HELD LIABLE FOR ANY LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES CAUSED BY THE USE OF THIS PRODUCT OR INABILITY TO USE IT, EVEN IF THE COMPANY OR ACCTON HAS BEEN ADVISED OF SUCH LIABILITY OR OTHER SPECIAL CLAIMS.

If you purchased this product in the USA, be aware that some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state. All parts or components contained in this product are covered by Accton's Limited Lifetime Warranty for this product. The product may contain fully tested, recycled parts, warranted as if new.

For warranty information:

All territories except North and South America:
Accton Technology Corporation, International Headquarters
No. 1, Creation Rd. III, Science-based Industrial Park, Hsinchu 300, Taiwan, R.O.C.
Phone: 886-3-5770-270 Fax: 886-3-5770-267 BBS: 886-3-5770-654

North and South America:
Accton Technology Corporation, USA Headquarters
1962 Zanker Road, San Jose, CA 95112, U.S.A.
Phone: 408-452-8900 Fax: 408-452-8988 BBS: 408-452-8828

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Fax: 886-3-5770-267, 886-3-5775-541
BBS: 886-3-5770-654
Taipei: Phone: 886-2-577-1220 to 9
Fax: 886-2-577-0816

Accton USA,
1962 Zanker Road,
San Jose, CA 95112, USA
Phone: 408-452-8900, 408-452-8080
Fax: 408-452-8988
BBS: 408-452-8828
FAST FAX: 408-452-8811

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Phone: 44-1753-687677, 44-1753-680109
Fax: 44-1753-689010

Accton Australia,
Level 6, 10 Help Street
Chatswood, N.S.W. 2067
Australia
Phone: 61-2-9410-9860
Fax: 61-2-9410-9861
BBS: 61-2-9410-9862
Internet: http://www.accton.com.au

Accton Japan,
Yokohama Landmark Tower 17F,
2-1-1, Minatomirai 2-Chome,
Nishi-Ku, Yokohama,
220-81, Japan
Phone: 81-45-224-2332
Fax: 81-45-224-2331

Ordering Information

• **CheetaHub Power-3012A** (EH3012A)	Fast Ethernet Stackable Hub with 12 100BASE-TX ports
• **Uplink Modules**	Slide in switch module with 1 100BASE-TX or 100BASE-FX port
100BASE-TX (EM3051-TX) **100BASE-FX** (EM3051-FX-SC) (EM3051-FX-ST)	The 100BASE-TX module runs at 10 or 100 Mbps (via auto-detection). The 100BASE-TX and 100BASE-FX modules run at half or full duplex (via auto-negotiation).

Glossary

100BASE-TX

IEEE's specifications for 100 Mbps Ethernet using twisted-pair cable (100Ω Cat. 5 STP or UTP). The maximum length of cable for a point-to-point connection is 100 meters (328 feet).

100BASE-FX

IEEE's specifications for 100 Mbps Ethernet using multimode fiber optic cable. The 100BASE-FX Switch Module can be used to support fiber optic cable with SC or ST-type connectors. The maximum length for a point-to-point connection is 2 kilometers (1.24 miles) at full duplex, or 412 meters (0.25 miles) at half duplex.

Collision

A condition in which two packets transmitted over a medium interfere with each other. Their interference makes both signals unintelligible. The transmitting devices have to halt transmission for a random period of time before trying to send data again.

Configuration

The way to set up a computer, server, or local area network.

Connection

A logical binding between two or more users of an interconnection service.

Daisy-Chain Port

An MDI RJ-45 port used to attach compatible devices in a daisy-chain configuration using straight-through twisted-pair cable. To attach a device, either run a connection from the daisy-chain port on one device to a station port on the other device, or cascade the two devices by running crossover cable between MDI-X station ports on both devices.

Ethernet

A network communication system developed and standardized by DEC, Intel, and Xerox, using baseband transmission, CSMA/CD access and logical bus topology, and coaxial cable. The successor IEEE 802.3 standard provides for integration into the OSI model and extends the physical layer and media with repeaters and implementations that operate on fiber optics, baseband, and twisted-pair.

Fast Ethernet

100 Mbps network communication system based on Ethernet and the CSMA/CD access method.

FlexBus Ports

SCSI ports found at the backplane of the CheetaHub labeled In and Out. These ports are used for linking the hub to other compatible hubs using Accton's FlexBus cable.

IEEE 802.3 Standard

Standard for the physical and electrical connections in local area networks developed by the IEEE. The IEEE 802.3u standard covers these same issues for 100 Mbps networks.

LED

Light emitting diode on the front panel of the hub used for monitoring a hub or network condition. An LED display corresponds to a hub condition.

Local Area Network (LAN)

A group of interconnected computers and support devices.

MDI Port (Medium Dependent Interface)

MDI is the IEEE standard for the twisted-pair interface to 10BASE-T (or 100BASE-TX). This RJ-45 port can be used with straight-through cable to connect the hub to a network interconnection device, such as a switch. Pin-out assignments are shown in Appendix B.

MDI-X Port (Medium Dependent Interface - Crossed)

This RJ-45 port, which crosses the receive and transmit signals internally, can be used with straight-through cable to connect the hub to any device that has a standard network interface (e.g., workstation, server or router). Pin-out assignments are shown in Appendix B.

RJ-45 Connector

Most common terminator for twisted-pair wiring.

Shielded Twisted-Pair (STP)

100Ω Category 5 twisted-pair wire covered with an external aluminum-foil or woven-copper shield designed to reduce excessive noise pick up or radiation. The STP cable referred to in this manual is also sometimes called screened twisted-pair (ScTP). Its impedance is 100Ω and has the same pin assignment as UTP. This cable should not be confused with the older 150Ω cable type designed by IBM.

Star Topology

Physical connections for this hub are limited to a star configuration (i.e., similar to a hub and spoke arrangement). This topology also requires that only one path exists between any two nodes, and that data transmitted by any node is concurrently available to all other nodes within the same local network (i.e., immediate collision domain).

Station Port

The MDI-X port can be used for connecting the hub to any device that has a standard network interface (e.g., workstation, server or router). For Port 12, the selector switch must be set to MDI-X. (This port can also be connected to an MDI port on another compatible hub or a switch.)

Unshielded Twisted-Pair (UTP)

Cable composed of insulated wires twisted together to reduce electrical interference; used in common telephone cord.

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